

SMALL & LARGE INTESTINE

*** ANATOMY :-** see later.

*** DISEASES :-**

- Intestinal diverticulae.
- Intestinal tumours. (benign & malign. → Ca. colon)
- Others :- IBD, TB, β , ... etc.
- Rectal disease (Prolapse ... etc).

INTISTINAL DIVERTICULAE

* Diverticulum :- is a blind pouch continuous with lumen of a hollow viscus (as gut, bladder).

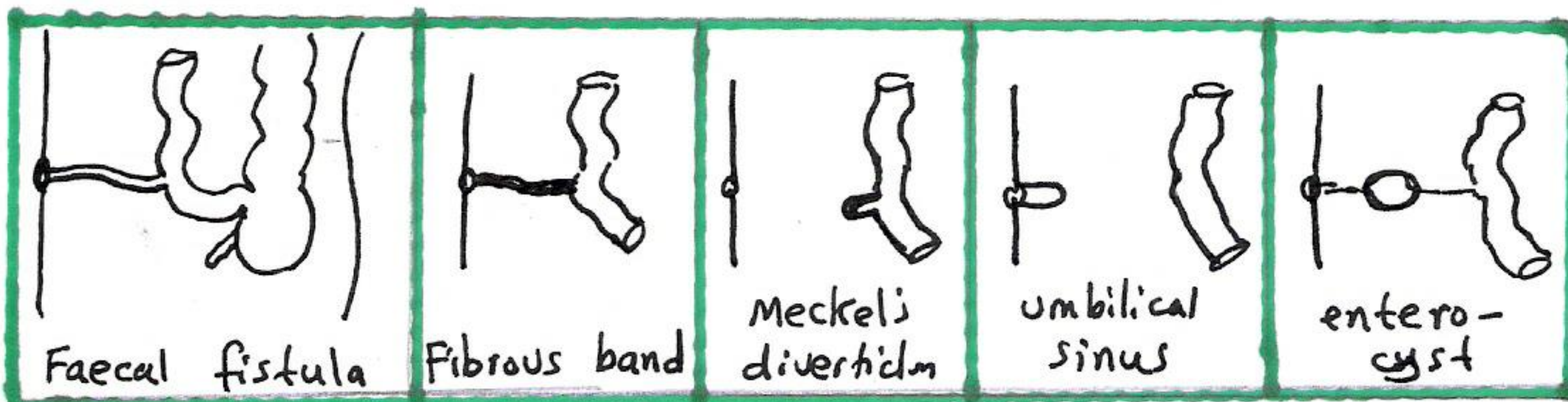
* Divided into :- (I) True (contain all layers) and false.
(II) or Congenital (as Meckel's) and acquired (colon divert)

I Meckel's diverticulum :-

*** Definition :-** Proximal unobliterated part of vitello-intestinal duct.

* Vitello-intestinal duct :-

- Is a duct joining yolk sac & primitive gut, ~~appears~~ disappears at 6th month from distal to proximal. (toward umbilical end).
- Congenital anomalies are :-



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* Incidence :-

- Meckel's called disease of two ..

- Occurs in 2% of people.
- male 2 times female (2:1 = ♂:♀)
- about 2 inches length.
- about 2 feet from ileocaecal junction.
- Contain 2 ectopic tissues (gastric & pancreatic)

* Pathology :-

- It is a true diverticulum, arising from antimesenteric border of ileum, usually 2 feet from ileocaecal junction

* Clinical Picture :-

- Usually asymptomatic & discovered at operation during abdominal surgery as appendicectomy
- May presented by complication.

- * Complications are :-**
1. acute diverticulitis (typically as appendicitis)
 2. bleeding per rectum due to ulceration by gastric epithelium.
 3. Intestinal obstruction e.g by intussusception, volvulus (band to umbilicus), Litter's hernia.
 4. Perforation & peritonitis

* Investigations :-

1. Tc⁹⁹ scan for GI bleeding may show gastric mucosa.
2. laparotomy in complicated cases (incidentally found).

* Treatment :-

- Excision of the diverticulum, ttt complications (as peritonitis)

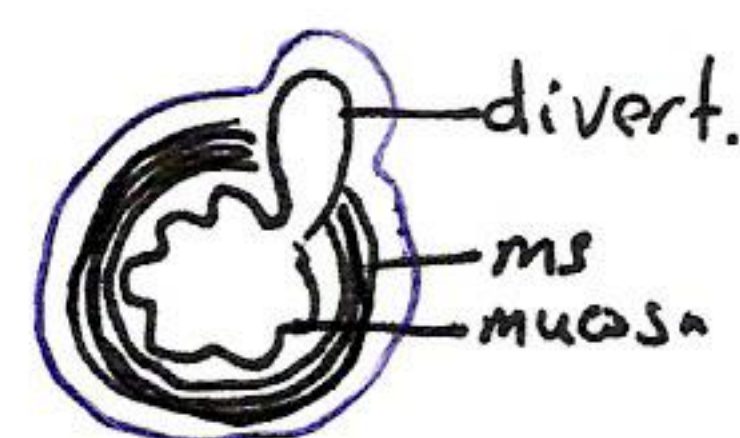
II Diverticular dis. of colon :-

*** Definition :-**

- Outpouchings (herniations) of mucosa through the bowel wall.

*** Incidence & Pathology :-**

- Common in old people (rare before 40 yr) ^{churchill's} (40% of pt are > 70 yr) in western.
- Occure more commonly in sigmoid colon due to increased intraluminal pressure by constipation e.g by ↓ fiber diet.
- Occure between taenia coli where vessels penetrate bowel wall (weak point).



*** Clinical Picture :-**

① Uncomplicated cases :- irritable colon.

- may be asymptomatic (Diverticulosis)
- Mild pain in LIF, distention, flatulence.

② Complicated cases :-

① Acute diverticulitis :-

- usually by obstruction of base or oedema → LIF pain (called Left sided appendicitis)
- May perforate → localized peritonitis (abscess) or generalized perit.

② Chronic diverticular disease :-

- Causes lower LIF pain, cricky, altered constipation & diarrhoea (D/D of ca. colon) and excessive flatus.

③ Fistula formation :-

- may be external (to skin) or internal (colovaginal, -vesical...)

④ Bleeding :-

- may cause massive bright red P/R from marginal artery.

*** Investigations :-**

- Laboratory :- Hb, WBC (↑ in acute cases)
- Barium enema (contraindicated in acute) → sawtooth appearance.
- Sigmoidoscopy to exclude carcinoma.
- Mesenteric angiography :- if needed to localize bleeding vessels & to ttt by embolization of vessel.

* Treatment :-

UN

① Complicated cases :-

- high fiber diet, antispasmodic, bulking agent (as fypogel)

② Complicated cases :-

1. acute diverticulitis :-

- treated conservatively as appendicular mass (Bed rest, NPO, IV fluid, IV antibiotic).

2. Chronic diverticulitis :-

- usually by colectomy.

3. bleeding :-

- resuscitation (see GIT bleeding), embolization, may ^{rare} colectomy.

4. Perforation & Peritonitis :-

- Laparotomy, peritoneal lavage, resect perforated area, in case of sigmoid disease → Hartmann's procedure.
- drain tube, antibiotic.

↳ (proximal colostomy then later do anastomosis)

5. Intestinal obstruction :-

- resection of strictured part either hartmann's procedure or primary anastomosis protected by temporary defunctioning colostomy. "churchill".

* D/D :-

- carcinoma colon, Crohn's disease, ischaemic colitis, irritable bowel syndrome, ... etc.

Saint's triad :-

Chronic Calculous Cholecystitis, Hiatus Hernia & Diverticulosis coli

NB Intestinal Fistula - divided into $\begin{cases} \text{internal (connected to viscus)} \\ \text{external (" " skin)} \end{cases}$

- or divided into $\begin{cases} \text{low output fistula (< 500 ml/day)} \\ \text{high " " (> 500 " ")} \end{cases}$

INTESTINAL TUMOURS

①

A. SMALL INTESTINE :- $\rightarrow$ rare.

- Benign tumours :-
 - Adenoma, Lipoma, & Leiomyoma
 - Peutz-Jepher's syndrome. $\rightarrow$ can $\rightarrow$ intussusception ^{MCA}
- Malignant tumours :-
 - Lymphoma (Non Hodgkin's).
 - Carcinoma (adenoca.)
 - Carcinoid tumour.

B. COLO-RECTAL TUMOURS :

- Benign tumours : (usually polyps)

- * Epithelial :-
 - 1] Hamartomas
 - (single) $\rightarrow$ Juvenile polyp.
 - (Multiple) $\rightarrow$ Multiple Juvenile polyps. $\rightarrow$ Peutz-Jepher's syndrome
 - 2] Inflammatory
 - (Multiple) $\rightarrow$ Bilharzial polyps $\rightarrow$ Ulcerative colitis (Pseudopolyp)
 - 3] Neoplastic
 - (single) $\rightarrow$ Adenoma (villous)
 - (Multiple) $\rightarrow$ Familial adenomatous Polyposis ^{FAP} $\rightarrow$ Gardner's syndrome.

- * Mesenchymal :- Lipoma, Leiomyoma, haemangioma. --- etc.

- Malignant tumours :-

- * Primary :- carcinoma, carcinoid, sarcomas.
- * Secondary :- invasion from surrounding malignancies.

Peutz-Jepher's syndrome :-

- Multiple, familial, intestinal hamartomatous polyps, AD.
- Mainly affect jejunum.
- associated with melanin pigments of mucocut. junction, Lips, gums, also hand & foot. $\rightarrow$ Bailey & Love's $\rightarrow$ current $\rightarrow$ Michael $\rightarrow$ Churchill
- Malignant change rarely occurs (or very small) (uncommon) (No malign)
- ttt : as malignancy rare, resection needed only for complicated polyps (bleeding, intussusception) or large single polyps.

- Carcinoid tumour :-** (rare) ^{current} ^{Bailey & Love} ^{Kulchitsky cells} ^{enterochromaffin cells} ^{from neuroendocrine cells at base of intestinal crypts.}
- arises from APUD cells (Amine Precursor Uptake & Decarboxylation)
 - Commonly small & benign regarded as "malignant neoplasm in a slow motion" ^{current} → (Benign but can metastasize to liver)
 - commonest site is appendix (mainly apex)
 - c/s golden yellow (lipid content)
 - few pt manifested as Carcinoid syndrome due to release of serotonin (5-hydroxy tryptamine) which present as 5-hydroxy indoleacetic acid in urine during attacks. ^{associated with MEN syndrome}
 - Carcinoid syndrome →
 - flushing with attacks of cyanosis
 - Diarrhoea with borborygmi → improved by octreotide (somatostatin analogue)
 - hypertension, asthma (bronchospasm)
 - Pulmonary & tricuspid stenosis.
 - treatment : → usually by Rt hemicolectomy for large tumour but if < 2cm only appendectomy enough.

Juvenile Polyp :- (solitary or multiple)

- Solitary juvenile polyp common in rectum, affect children.
- C/P :- commonest cause of bleeding per rectum in children
 - Pedunculated Poly, no malignant change.
- ttt - Ligation & excision.

Villous adenoma:

- Multiple, common in sigmoid & rectum, affect old (45 yr)
- C/P - blood & mucus per rectum, hypokalaemia
 - sessile (not pedunculated) & multiple (carpet tumour)
 - Liable for malignant change 10-15%. ^{↑ size}
- ttt :- if high → anterior resection
if low → Abdomino-Perineal resection.

adenomatous polyps are pedunculated, rarely change into malignant

Gardner's syndrome :-

- rare variant of FAP (familial adenomatous polyposis)
- It involves FAP +
 - 1- osteoma of skull & mandible.
 - 2- multiple sebaceous cysts.
 - 3- Desmoid tumours.

* FAP "familial adenomatous Polyposis :-

- also called FPC "Familial Polyposis coli"

• **Aetiology**:- Autosomal Dominant, on chromosome No. 5.

• **Pathology**:- multiple polyps (≥ 100) of colon & rectum, may be sessile or pedunculated.

- types are ① tubular ② villous ③ tubulovillous.

- If untreated, carcinoma develops in 100% of pt by 4th or 5th decade. (10-20 yr after polyposis)

• **Incidence**: Familial, more in male > female, 10-15 years ^{never since birth}

• **C/P**:- lower abdominal pain, bloody diarrhoea, mucous wt loss, but may be asymptomatic.

• **Investigation**:- sigmoidoscopy or colonoscopy with biopsy
- Barium enema $\rightarrow$ filling defect

• **Treatment**:- (A) Affected Person:-

• Panproctocolectomy + Permanent ileostomy.

• total colectomy + ileo-rectal anastomosis + endoscopic removal of rectal Polyps & regular follow up (6 m)

• ^{Total} ~~Total~~ colectomy with distal rectal mucosectomy + ilioanal anastomosis.

(B) Family members:-

• regular endoscopic follow up (family screening) ^{unlikely appear after 30 yr} every year

INFLAMMATORY BOWEL DISEASE

"IBD"

- The two main disorders are ulcerative colitis & Crohn's disease.

	Ulcerative colitis (Procto-colitis)	Crohn's disease (Regional enteritis "ileitis")
Definition	Non-specific ulceration.	Non-specific granulomatous inflammation.
Aetiology	Unknown (? immunological, genetic, dietary)	Unknown (? hereditary focal ischemia) ^{Familial}
Pathology	- Ulceration of mucosa & submucosa of colon & rectum (Pancolitis) or rectum alone (Proctitis) - No skip lesions. - in 95% disease start in rectum & spread proximal even in ileum (backwash ileitis)	- affect <u>all layers</u> of GIT (from mouth to anus) mainly <u>ileum</u> - there is skip lesions (cobble stone)
C/P	- age: 25-30 years - Sex: Female = male - S/S: - Diarrhoea (blood, Pus & mucous) with tenesmus, abd. pain - wt loss	- age: 15-35 years - Sex: Female ^{slightly} > male - S/S: - Diarrhoea, rectal bleeding, abdominal pain, RIF mass - wt loss, dehydration
Complications	- Toxic megacolon (fatal) - Hge (bleeding P/R) - Ca colon (if Pancolitis > 10yr) - intest. obstruction (by stricture) ⑤ <u>extraintestinal complications</u> Arthritis, cholangitis, cirrhosis, skin lesion (pyoderma gangrenosum, erythema nodosum), uveitis & amyloid	- Malabsorption (extensive) - abscess & fistula / ^{rare} cancer - Perianal abscess, fistula - intestinal obstruction (by stricture) ⑤ <u>extraintestinal complications</u> - as ulcerative colitis
Investigation	- Barium enema → "Pipe stem" (short colon + absent haustration) - Sigmoidoscopy + colonoscopy & biopsy - CBC, U/E/C, LFT, AXR.	- Barium meal & follow through shows → "String sign of Kantor" (segmental area of stricture) - U/S, CT (abscess & mass) - CBC, U/E/C, AXR, B12, folic acid

	UC	Crohn's
Treatment		
(A) Medical	- correct anemia, dehydration - give <u>steroids</u> (oral $\pm$ suppository) until disease controlled - if <u>controlled</u> give <u>sulpha-salazine</u> or <u>mesalazine</u> orally to maintain <u>remission</u>	- correct anemia, fluid/electro - give steroids given in acute <u>exacerbations</u>. - <u>sulphasalazine</u> may help reduce relapse of colonic disease. - symptomatic <u>ttt</u> as anti-diarrhea, anti-spasm.
(B) Surgical	- Pan-procto-colectomy with terminal ileostomy. - Pan-colectomy + ileo-rectal anastomosis + regular followup proctoscopy. - Pan-colectomy + rectal mucosectomy + ileo-anal anastomosis	- Local resection of the affected loop. - for stricture do a stricturoplasty (incise longitudinal & close transversely). - Panprocto-colectomy with ileostomy may be needed but surgery <u>not curative</u>

churchill's

* Indications of surgery in IBD

churchill's

- 1- Failure of medical treatment
- 2- Toxic megacolon (dilatation)
- 3- acute Hge, perforation, abscess.
- 4- intestinal obstruction, fistula, severe arthritis.
- 5- development & prevention of carcinoma.
- 6- Uncertainty of diagnosis

RECTAL PROLAPSE

* Definition :-

- Protrusion of rectum through anus (either Partial → mucosa only or complete → all layers).

	Partial Prolapse	complete Prolapse
Incidence.....	common	less common
age.....	more in children	more in elderly female
Length of prolapse.....	< 5cm	> 5cm
Layers ".....	mucosa only	whole rectal layers

* Aetiology :-

- Complete type :- like intussusception but no intussusciens. Proctocolitis → tenesmus → straining at defecation
- Partial type :- straight sacrum in children, chronic straining with prolonged diarrhoea, advanced Piles, sphincter atony

* Clinical Picture :-

- Protruding mass from anus especially during defecation. (may reduce spontaneous)
- Blood & mucus PR from ulceration of exposed mucosa.
- S/s of complications are :- ulceration, bleeding, incontinence, pruritis, irreducibility, psychological.

* Investigations :-

- Anorectal manometer & EMG of rectal sphincters.
- Sigmoidoscopy or barium enema → to exclude other causes as #.

* Differential Dx :-

- Prolapsing hemorrhoids, polyps, intussusception.

* Treatment : ^{churchill's}

⊗ Partial Prolapse [1] in children is usually self-correcting.

- treatment is conservative $\rightarrow$ avoid straining, manual reduction by mother, mild laxative may be needed.
- In few cases s/c injection of sclerosant may be needed. (e.g. phenol 5% in almond oil).

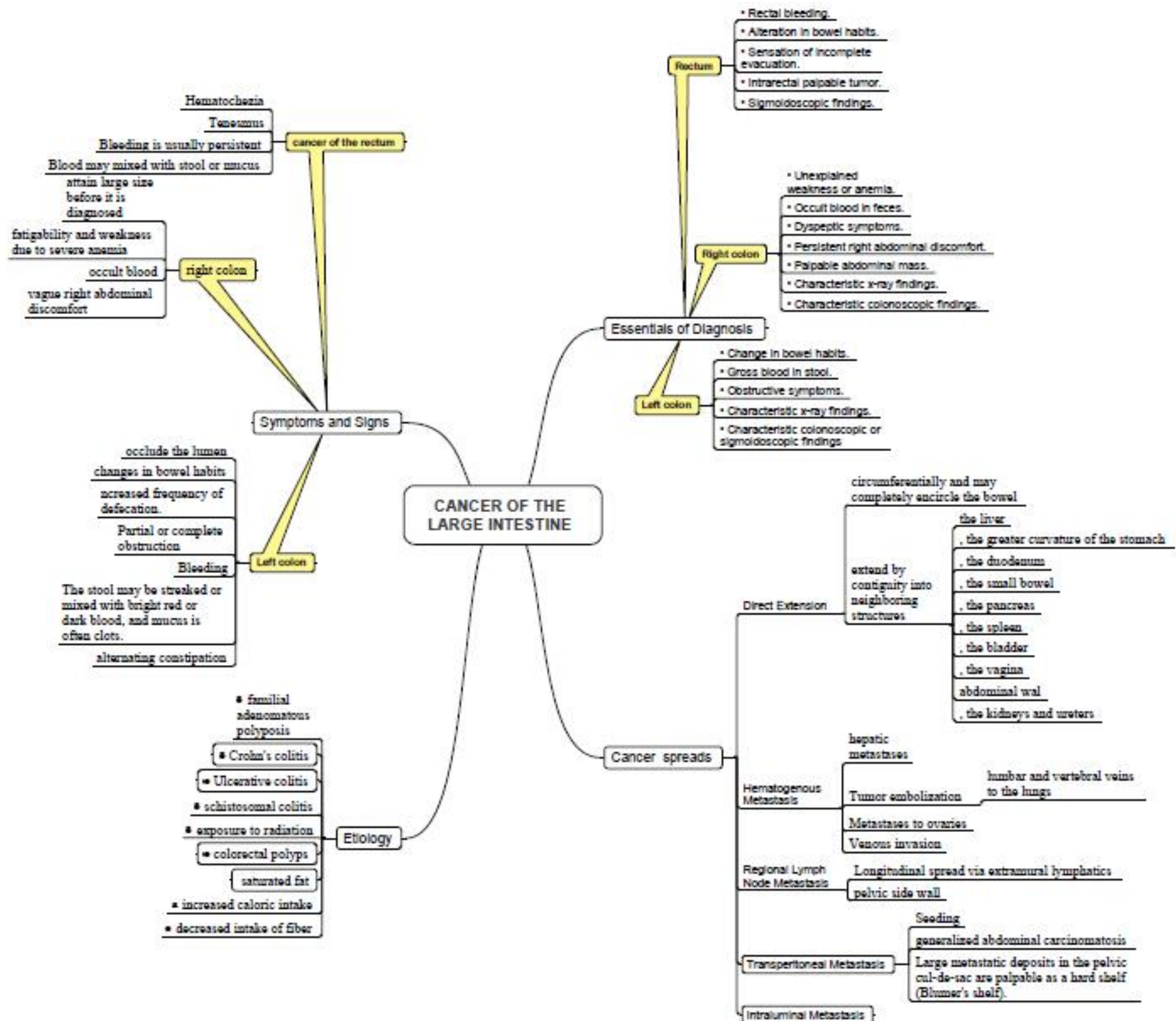
[2] in adult :- by submucous inj. of sclerosant or excision in a fashion ^{as} ~~as~~ haemorrhoidectomy.

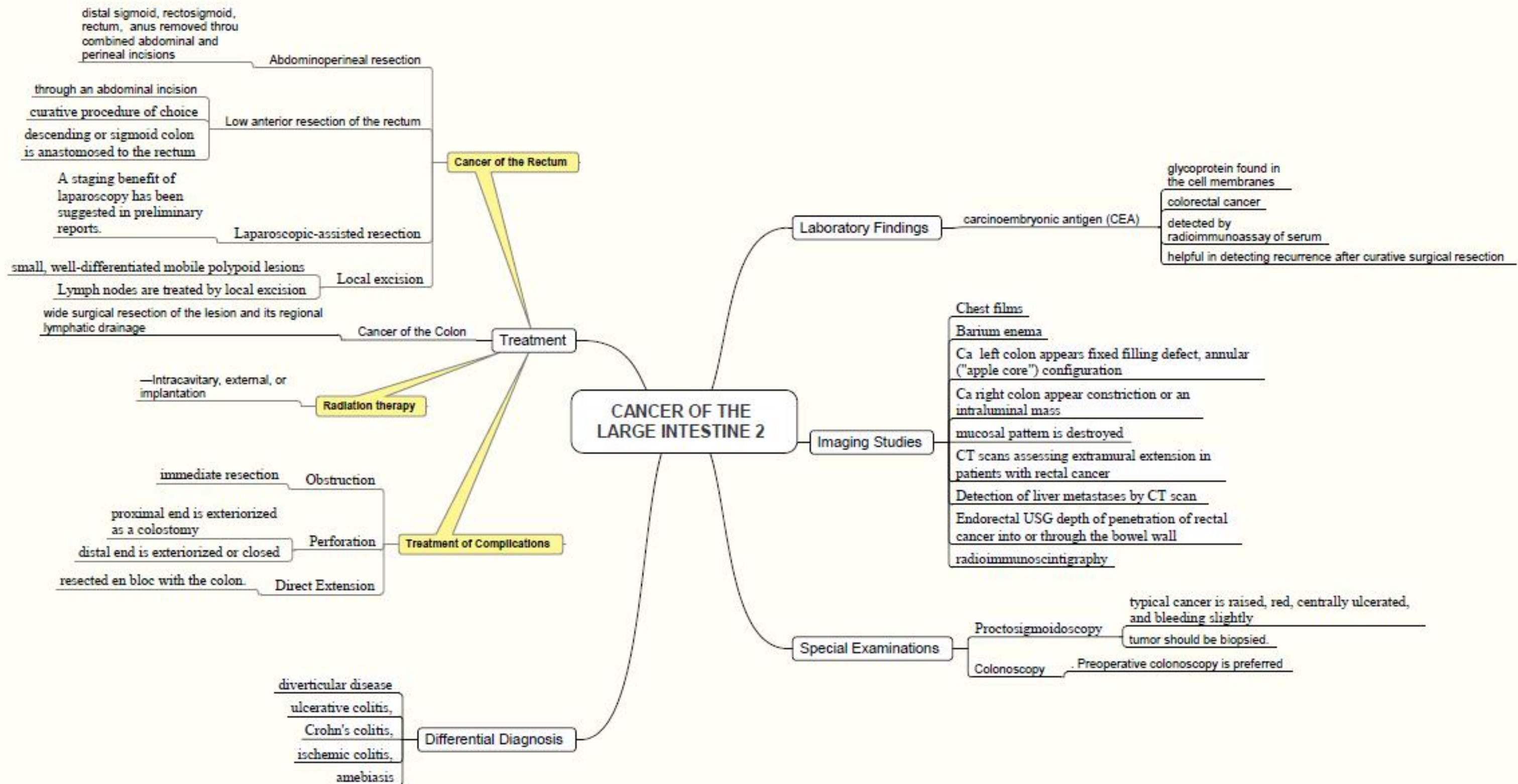
⊗ Complete prolapse : surgical only.

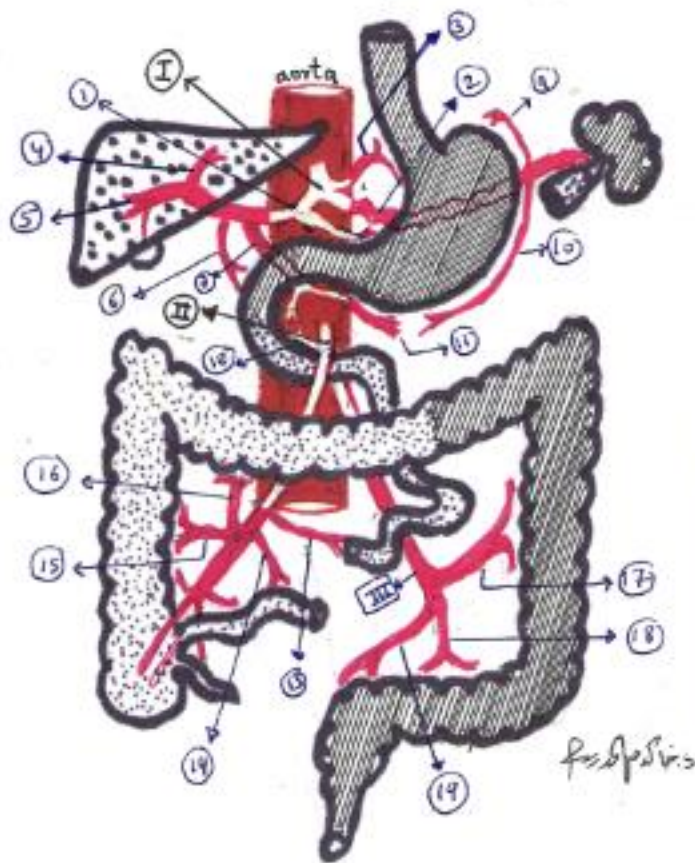
- Rectopexy (Charles Well's operation) done through an abdominal approach $\rightarrow$ rectum is mobilized & fixed to sacrum by inserting a Teflon prosthesis or Prolene mesh

- Thiersch's operation : (Perianal circulage)

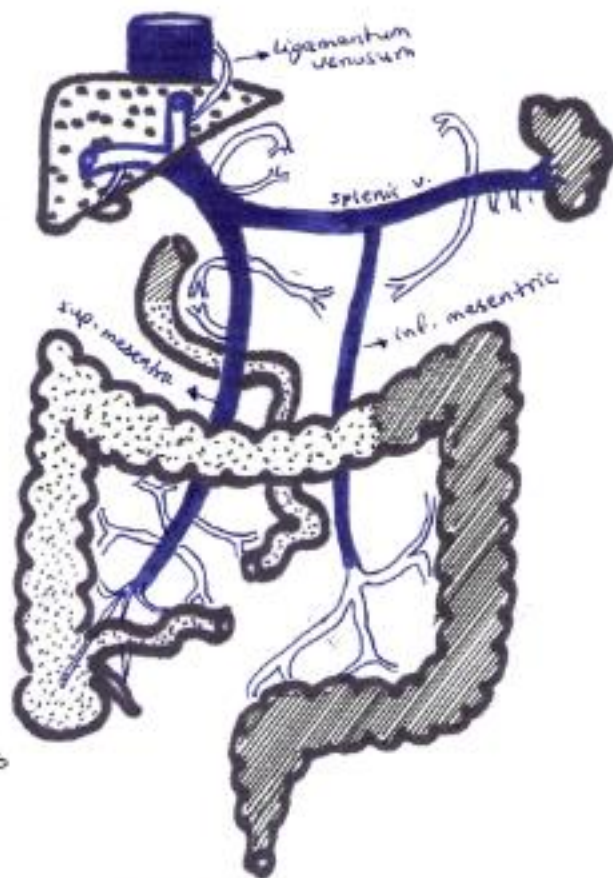
^{$\rightarrow$ Ripstein procedure} ^{$\rightarrow$ Charles}
done if unfit pt, by circumferential narrowing of the anus by inserting a suture s/c around anal orifice (Thiersch wire - although nylon rather than wire is used nowadays) $\rightarrow$ left for 40 days $\rightarrow$ fibrosis & keep rectum in place "effective ~~ttt~~ in unfit pt".







Arterial
supply



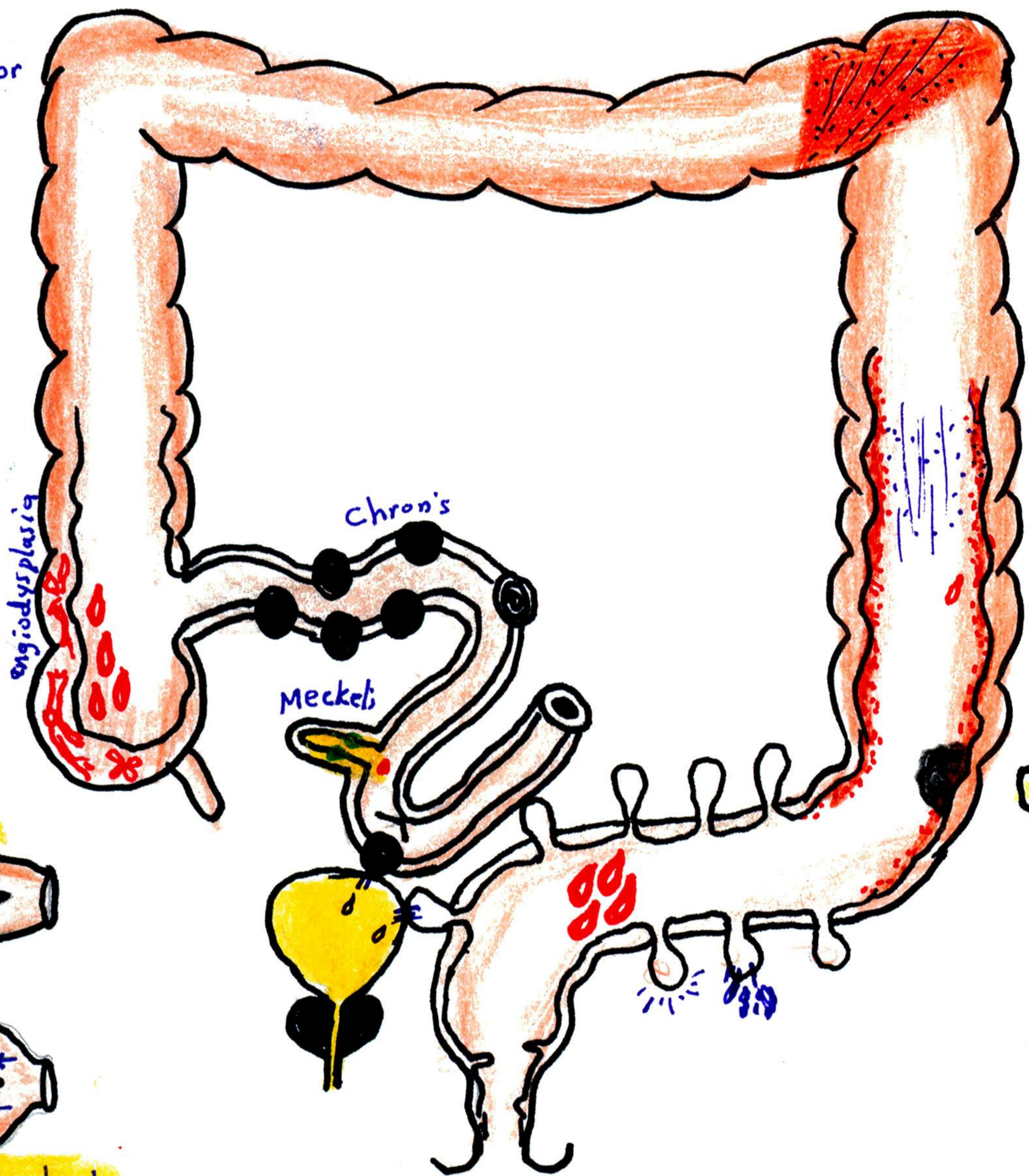
portal
circulation

Diverticulosis & IBD

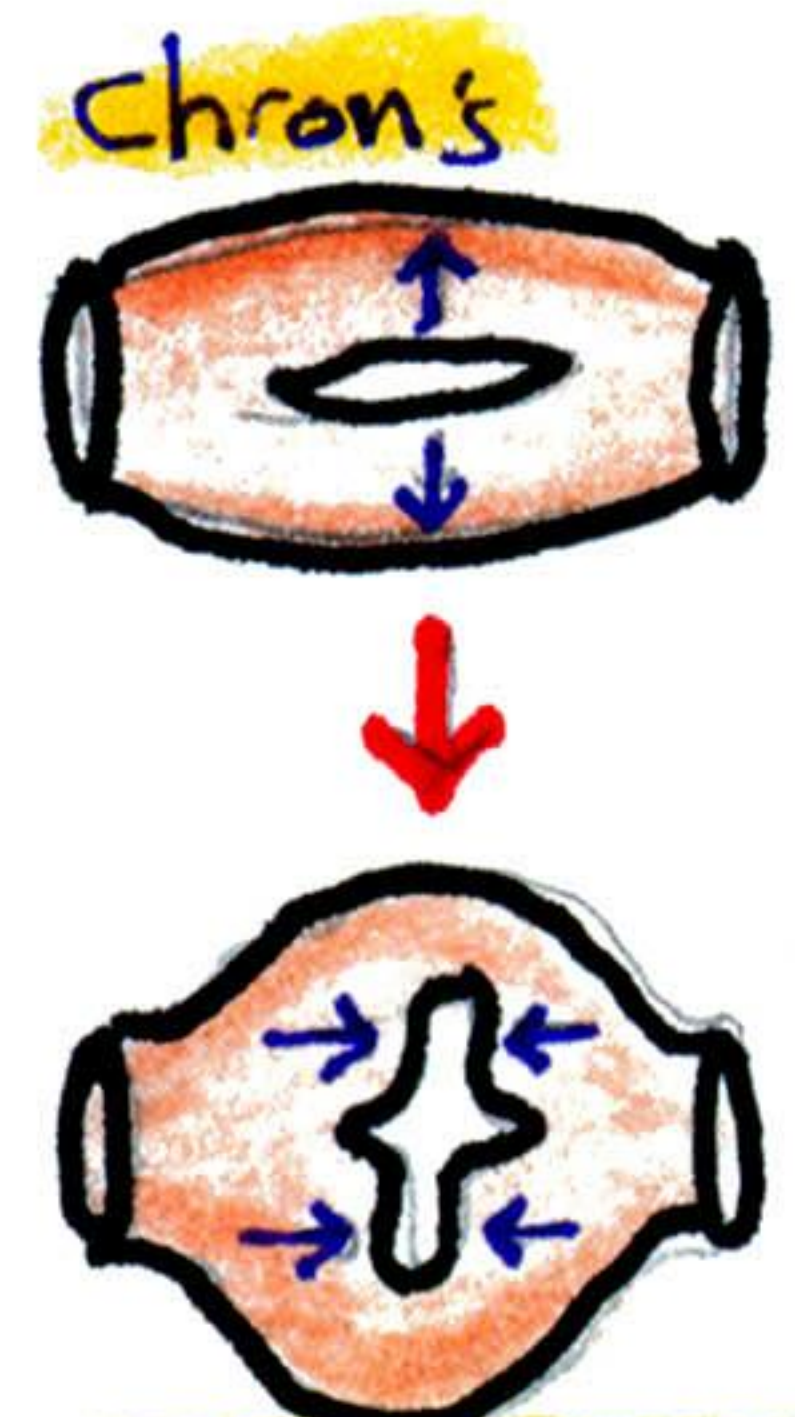
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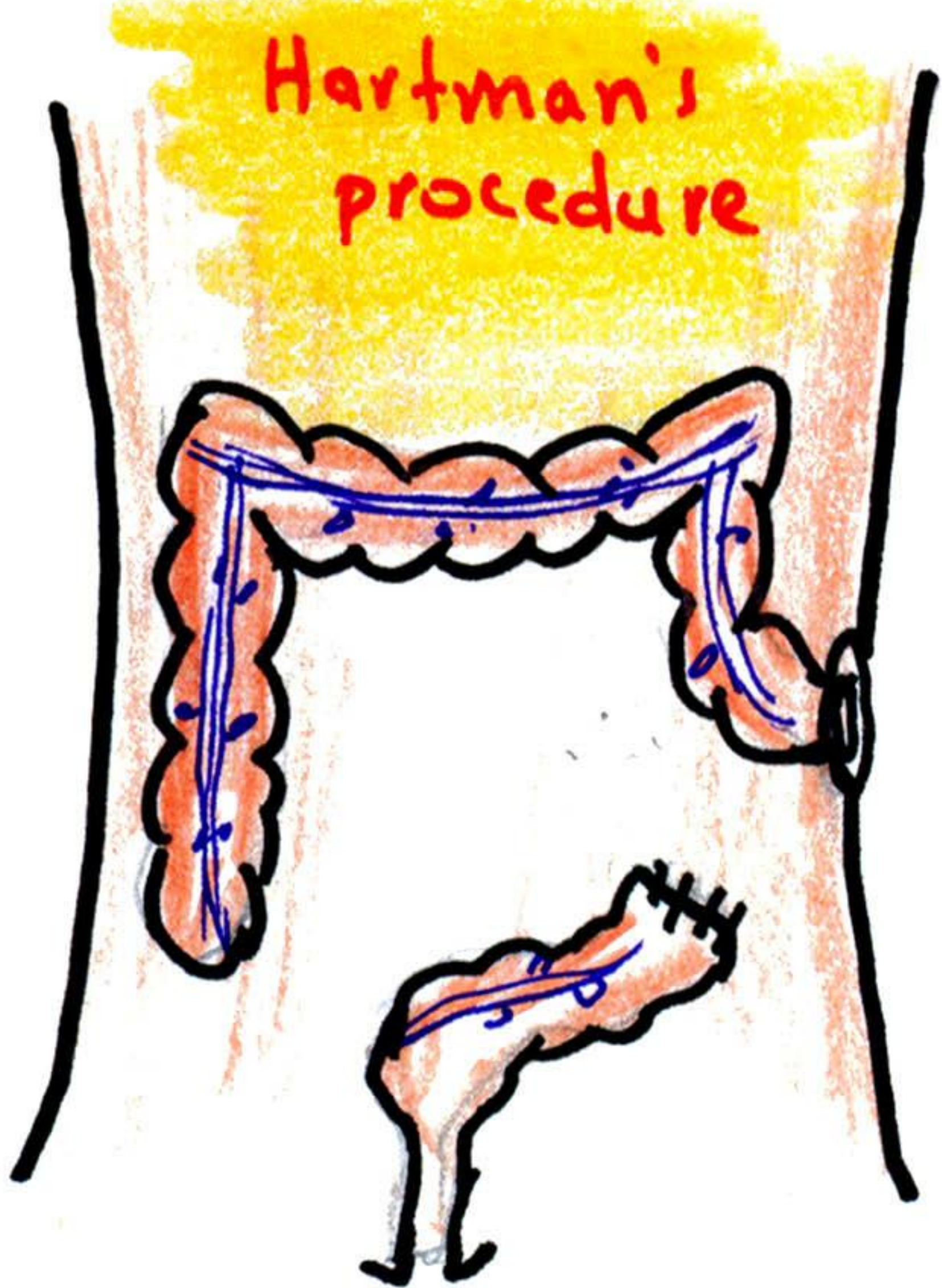
(UC)
pipe stem
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(Diverticulosis coli)
saw teeth



Stricturoplasty



Hartman's procedure

Extraintestinal manif.

